

5 WAYS TO STAY FIT THIS WINTER | NEW RESEARCH ON BOOSTING N.O.

# MUSCLE & PERFORMANCE

DECEMBER 2015 • MUSCLE

**17**  
BEST SUPPS  
FOR SERIOUS  
SIZE

**THE ATHLETE'S  
GUIDE TO GOING  
GLUTEN-FREE**

**BEST MOVE  
FOR SIZED-UP  
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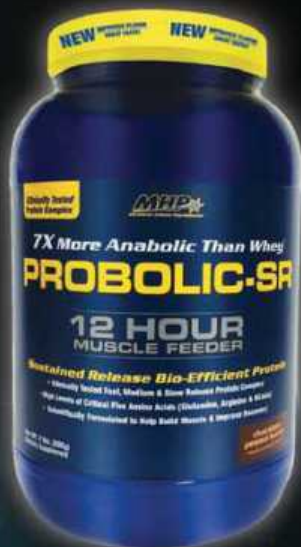
**Fabricio Werdum**  
MMA HEAVYWEIGHT CHAMP

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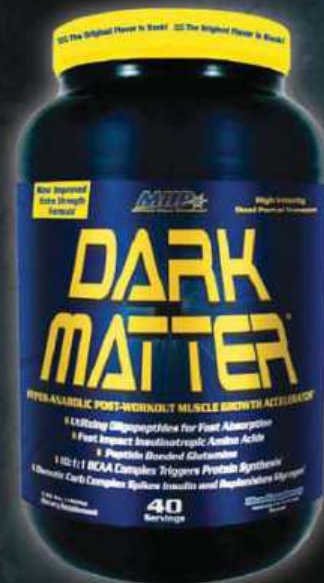
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- **FORMULATED TO BUILD MUSCLE & IMPROVE RECOVERY**
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- **LEUCINE LOADED 10:1:1 BCAA COMPLEX TRIGGERS PROTEIN SYNTHESIS**
- **GLUTAMINE RICH, FAST HYDROLYZED PEPTIDES OPTIMIZE RECOVERY**
- **OSMOTIC CARB COMPLEX SPIKES INSULIN & REPLENISHES GLYCOGEN**
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# DECEMBER 2015



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**ON THE COVER:** Rob Riches  
Photographer: Noel Daganta

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**GROUP PUBLISHER** Cheryl Angelheart **GROUP BRAND DIRECTOR** Alexander Norouzi  
**EDITOR-IN-CHIEF** Eric Velazquez, CSCS

**GROUP ADVERTISING DIRECTOR** Donna Diamond Riekenberg  
**ADVERTISING ACCOUNT MANAGERS** BJ Ghiglione, Julie Stone, Laura (Flores) Thorne  
**COPY EDITOR** Kristi Haar **SPECIAL PROJECTS EDITOR** Vicki Baker  
**ART DIRECTOR** Paul Duarte **PRODUCTION MANAGER** Patrick Sternkopf  
**PHOTO/VIDEO EDITOR** Josh Brumfield  
**A/R MANAGER** Alice Negrete **MARKETING MANAGER** Laureen O'Brien

**CONTRIBUTORS** Jordana Brown; Josh Bryant, MFS, CSCS, PES; Karla Dial; Wes Duncan; Dwayne Jackson, PhD; Jerry Kindela, MA, DHS; Noel Daganta; Robert Reiff; Jill Schildhouse; Matthew Solan; Cristen Wilson; Joe Wuebben



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\*WHEY PROTEIN FRACTIONS \*ENHANCED AMINO™

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EFFECTIVE THAN ALL WHEY PROTEINS...

100% WHEY PRO-AMINO™ v2.0 (WPA2) incorporates numerous Advanced Technologies equating to Guaranteed Increases in LBM (Lean Body Mass), TS (Total Strength), Recovery and Performance. WPA2 also Enhances PNB (Positive Nitrogen Balance), Enhances Anti-Catabolic and Anabolic Activity, Helps Prevent Muscle Breakdown and Supports Stimulating Muscle Protein Synthesis, culminating into producing the GUARANTEED #1 WHEY in the industry.

### THE PROVEN LEADER IN WHEY TECHNOLOGIES...

100% WHEY PRO-AMINO™ v2.0 incorporates not just one, but many different technologies developed and implemented by the HEALTHY 'N FIT® Research and Development Team, which collectively brings nearly 100 years of knowledge and expertise in Nutritional Sciences, Pharmacokinetics, Physiology and Exercise Physiology, into the development of HEALTHY 'N FIT® WPA2.

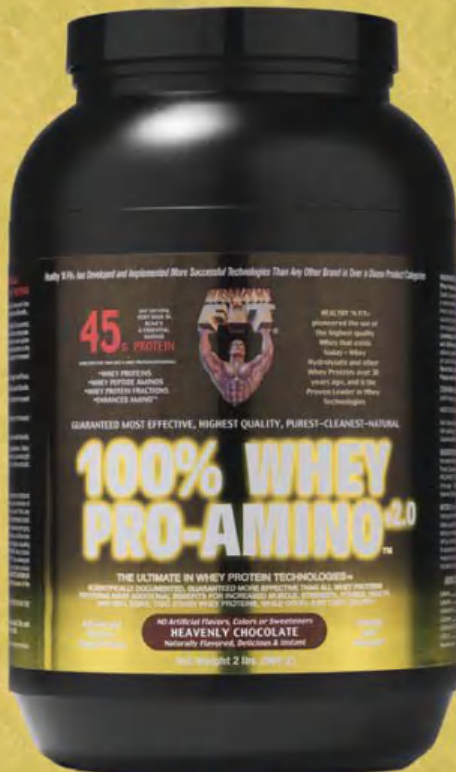
### 8 ADDITIONAL FORMS OF EFFICACY/ BENEFITS OTHER WHEY PROTEINS JUST DON'T DELIVER...

1\* WPA2 is guaranteed superior to all Whey Proteins. WPA2 consists of the Highest Quality Whey, including Whey Protein Isolate, Whey Hydrolysate Peptide Aminos and Efficacious Whey Protein Fractions.

2\* Exclusive to HEALTHY 'N FIT®, The ENHANCED AMINO™ INTRINSIC INFUSION™—A Synergistic Matrix incorporating many Additional Technologies: Correct Proportion™ Ratio Technology™ BCAA's which have the highest Chemical Score, hence the most effective BCAA's in the industry. (Chemical Score is the advanced scientific methodology which determines the quality/effectiveness of amino acids such as BCAA's). While high ratio or leucine heavy BCAA's may seem impressive to the uninformed, the facts are that they are in direct opposition to BCAA's Chemical Score, hence lower quality/effectiveness...

3\* The Ultra Recovery™ Muscle & Strength Matrix which provides advanced maximum nutritional support for enhanced recovery. Recovery is one of, if not the most important phase of training for increased muscle mass and strength...

4\* TheaMax™—Cortisol, also known as the "stress hormone" and "aging hormone" can be produced from stress in our lives and from intense training. Cortisol is in direct



opposition to your muscle and strength building goals and can actually burn your existing muscle— a bodybuilder's, athlete's or anyone's nightmare. THEA MAX™ is scientifically documented to nutritionally support reduced cortisol and protect and promote muscle and strength.

5\* Healthy GH Levels Support—Beneficial to athletes and health enthusiasts...

6\* Additional Health Benefits Support—The WPA2 formula provides Nutritional Support for a Healthy Immune System, Enhanced Mood, Enhanced Focus and Concentration with no stimulants, Healthy Skin and Hair, Fat Loss while Protecting and Promoting Muscle, Anti-Aging Support Plus other Health and Well Being Benefits.

7\* WPA2 is the Purest, Cleanest, Natural GUARANTEED MOST EFFECTIVE Whey formulation and FREE OF artificial flavors, colors, sweeteners and gluten. Many brands call their products "pure" and "clean" even though they contain artificial ingredients—this type of misinformation sends up red flags for many who are concerned about what other types of inaccuracies these brands have with other claims they make, and with the overall effectiveness of their products.

8\* Best Value—Other brands highest quality Whey's are only 1.6 lbs and 1.75 lbs. 100% WHEY PRO-AMINO™ v2.0 is available in full 2 lbs. and 5 lbs. sizes and is a GUARANTEED MORE EFFECTIVE formulation and is a BETTER VALUE at a savings of over 20%.

### OTHER WHEY PRODUCTS "DIRTY LITTLE SECRETS"

#### TOP WHEY BRANDS #2-5 ANALYSIS

Brand #2 bases its company philosophy on how "pure" their whey isolate is, when in reality it's far from pure. The facts are that their whey isolate contains artificial flavors, sweeteners and colors, including Red 40, a suspected carcinogen (a substance that may cause cancer).

Brand #3 is a good whey protein and markets their product by including a precious metal in their product name, presumably hoping that it will make their whey product appear special. In addition, this brand states that their products are #1; the facts are that ingredients in 5 out of 6 products this brand claims to be examples of their innovation, were first implemented by HEALTHY 'N FIT®.

Brand #4 is a good whey protein; they are also an advocate of using a precious metal in their product name presumably hoping to create an impression of special quality for their whey products.

Brand #5 like Brand #2 bases their company/product philosophy on how "clean" their product is. Like Brand #2, it's not pure, clean or special.

**100% WHEY PRO-AMINO™ v2.0 IS GUARANTEED TO OVERWHELMINGLY SUPERCED BRANDS #2-5, and is the GUARANTEED MOST EFFECTIVE WHEY IN THE INDUSTRY.**



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\*Scheett, et al. Consuming branched-chain amino acid supplement during a resistance training program increases lean mass, muscle strength and fat loss. Journal of the International Society of Sports Nutrition 2009, 6(Suppl 1):P1

\*Scheett et al. Consuming branched-chain amino acid or whey protein in combination with hypocaloric diet differentially effects muscle mass, body fat and strength in trained subjects. Manuscript in Process.



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# BODY SHOP

SUPPLEMENTS / TRAINING / NUTRITION & HEALTH



Researchers are "pumped" over the latest findings on NO.

» Nitric oxide (NO) is one of the body's most potent vasodilators, making it a key player in increasing and maintaining blood flow to skeletal muscle. Increased NO production allows for greater blood flow to muscles and organs, which promotes enhanced muscle pumps and vascularity, increased flushing of muscle metabolites and replenished nutrients, removal of free radicals and elevated oxygen delivery. In other words, a boost in NO optimizes the skeletal muscle environment for anabolism.

NO boosters have been on the market for several years and are a primary ingredient in many pre-workout formulas. Yet science has shown that while several alleged NO boosters work well, others aren't as effective and still others don't work at all. This, of course, has led to ongoing research aimed at finding the ideal supplement (or combination of supplements) that undeniably promotes increased NO production in humans.

A recent multiphase study published in the *Journal of the International Society of Sports Nutrition* investigated the effectiveness of L-citrulline and/or glutathione (a potent antioxidant) on markers indicative of NO synthesis in rodents and humans. The most relevant findings came from the human phase of the study: It showed that **stacking L-citrulline and glutathione significantly increased markers of NO production**, which were most notable 30 minutes post-exercise. No other conditions boosted markers of NO, and postworkout NO production diminished (from baseline levels) in the placebo group.

■ **ACTION POINT:** Based on the findings of this study, stack 2 grams of L-citrulline with 200 milligrams of glutathione one hour before training. On nontraining days, take the same stack in the evening before bedtime.

Ensure your gains with the  
right preworkout cocktail.



## ENERGY BOOST PREWORKOUT APPROVAL

» Pre-workout supplements represent some of the hottest-selling products in the sports-nutrition industry. This stands to reason, since they're a convenient, affordable and simple way to prime the body with science-backed strength- and growth-promoting supplements that may also boost energy. Although many of the ingredients in pre-workout formulas have been studied independently, less is known about the safety and efficacy of these multi-ingredient products when taken over longer periods.

A study published in *Nutrition Research* provides the latest data supporting the safety and efficacy of a pre-workout blend containing caffeine (300 milligrams per serving), creatine (5 grams per serving), beta-alanine (4 grams per serving), branched-chain amino acids (6 grams per serving) and citrulline malate (1.5 grams per serving). Researchers reported that consuming this cocktail for 28 days straight (on training and nontraining days) did not negatively affect liver, kidney or cardiovascular health. In fact, those who took the pre-workout blend had far greater gains in fat-free mass and strength (leg press 1RM) versus those who took a placebo.

**ACTION POINT:** Choose a pre-workout product that lists its individual ingredients and doses. Remember, you get what you pay for: High-quality products tend to cost a little more, but you'll benefit in the long run. Since formulations vary from product to product, always take as directed on the label.





*Combining these three ingredients preworkout enhances strength and delays time to fatigue.*

MAX STACK

## PRIMED TO PERFORM

» Congratulations! You made it to the gym today. But what are you going to do now? If “train hard and train long” is part of the plan, you should strongly consider taking these three supplements beforehand:

**Caffeine:** This is a no-brainer. Caffeine has been proven to increase strength, boost energy and delay fatigue. With an adequate dose, you’ll feel caffeine’s effects almost immediately and prep your muscles as well as your nervous system for a great training session.

**Beta-Alanine:** Do you feel that tingle? That’s beta-alanine acting to improve your workout, and don’t worry, the tingling sensation is perfectly normal and totally harmless. Beta-alanine has been proven to increase muscle strength, improve muscle endurance, delay fatigue and enhance exercise training.

**Green Tea:** This ingredient has been around virtually forever as a highly effective (and natural) fat burner, but green tea can also help boost energy and focus when taken before training, particularly when combined with caffeine. As an added bonus, green tea is a respectable antioxidant, which will come in handy for fighting off all those training-induced free radicals that attempt to damage your cells.

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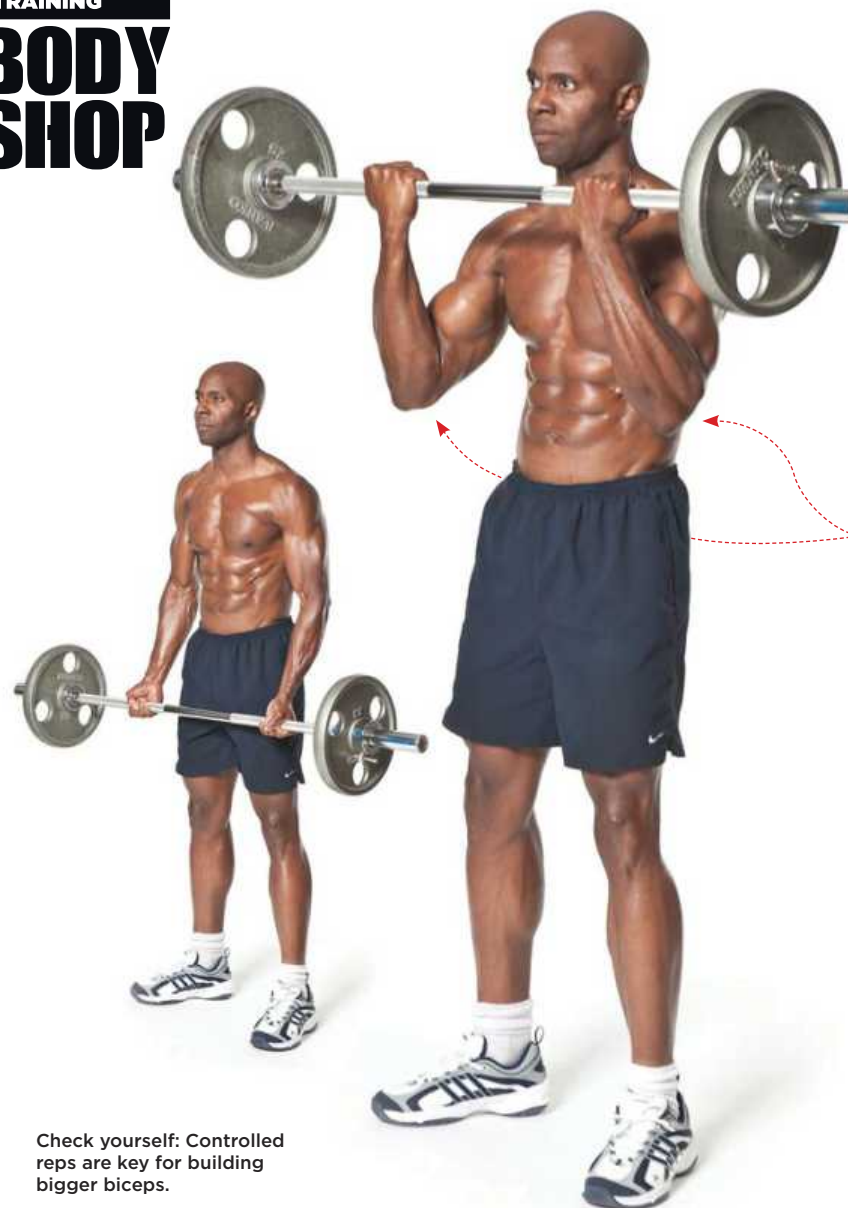


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## QUICK FIX BARBELL CURL

*Simple solutions to widespread exercise errors*

**THE FLAW:** Locking out your knees.

**THE FIX:** Yes, this is an arm exercise, but your legs play a role, too, even if just a minor one. Maintain a slight bend in your knees throughout the set. This will not only allow you to generate more force and power on the curl (as compared to fully straightened legs) but will also take pressure off the lower back.

**THE FLAW:** Letting your elbows travel upward.

**THE FIX:** It's a common tendency when the weight starts feeling heavy to lift the elbows to help complete a rep. But all you're doing here is involving the front delts and taking tension off the biceps. A slight shift forward of the elbows is OK, but don't let them lift up and away from your sides.

**THE FLAW:** Going too light.

**THE FIX:** Most trainers warn against going too heavy on curls, telling you to "check your ego at the door." It's a valid point, but this advice may swing the pendulum too far to where you're curling 65 pounds for 12 reps when you could probably manage 95 pounds for 10 reps with a little grit and determination (and even good form). The biceps won't grow unless you force them to by stepping out of your comfort zone and grunting out some heavy sets. Perhaps increasing your load will limit you to five or six reps. That's OK. Save your higher-rep work for dumbbell and cable curls or even a light finishing burnout set with the barbell.

Photos by Robert Reiff

## GET A GRIP HAND CHALK 2.0

» Finally, an alternative to the messy chalk that clouds the weight room and makes your gym attire look like it has been dipped in flour: Hand Armor Liquid Chalk. Shake it, apply it to your hands, let it dry and, *voilà*, in no time your hands are fully chalked while your clothes and the gym floor stay relatively clean. Hand Armor Liquid Chalk is perfect for the serious lifter — especially considering that many commercial gyms these days don't allow block chalk — and it can come in handy for activities such as rock climbing, softball/baseball, golf and even yoga.

Perhaps the most impressive thing about the product is that it's

antibacterial and can even be applied to hands with open wounds. This germ-protection feature was born out of necessity: Tony Maddalone, a former University of Utah strength and conditioning coach, had been diagnosed with a life-threatening autoimmune disorder and kidney failure when he conceived the product. "I was still working in the weight room and spotting guys all the time, so I knew I was susceptible to germs," says Maddalone, who's currently on dialysis and waiting for a kidney transplant. "It was a life-or-death situation for me. I needed to come up with a solution, and through trial and error Liquid Chalk was created."





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DRINK UP

# JUICY FINDINGS

Heads up, juice drinkers: OJ isn't your only good option. A just-released U.S. Department of Agriculture study found that individuals drinking two 8-ounce glasses of low-calorie cranberry juice daily displayed lower risk of such chronic diseases and risk factors as heart disease, stroke and high blood pressure. Scientists attribute these healthy findings to the polyphenols found in cranberries. Another juice to consider is beet juice. A recent American Physiological Society study found that males who drank beet juice for 15 days had not only more dilated blood vessels during exercise and at rest due to the nitrate content of beet juice but also lower blood pressure. More dilated vessels means more oxygen delivered to muscles for increased training endurance.





# 63%

Proportion of the Standard American Diet that's comprised of processed food, according to the USDA Economic Research Service. Plant food (12 percent) and animal food (25 percent) make up the remainder.

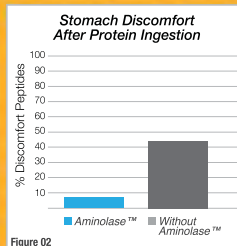
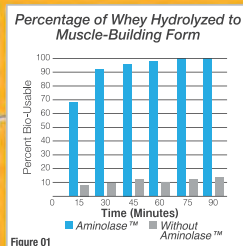
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## FAFQ (FREQUENTLY ASKED FOOD QUESTIONS)

**Q:** *Should I decrease my dairy intake if I'm trying to get lean?*

**A:** If you're serious about strength training, you've probably considered limiting your dairy consumption such as milk, cheese and ice cream to minimize the amount of body fat gained during a bulking phase. We don't know where or why this theory originated, but it may have been the result of a simple misunderstanding of dairy's dietary fat content (back when it was commonly accepted that increasing dietary fat would increase body fat). Or it may have been drawn from a few anecdotes from slightly lactose-intolerant subjects who may have mistaken the bloating

caused by lactose as an increase in body fat.

Regardless, dairy does not appear to cause any major short-term changes in body fatness or skeletal muscle any more than other food groups, assuming protein, calories and micronutrients are similar. In fact, a recent study found either 1) that dairy is positively associated with increased muscle mass or 2) no major differences between groups differing in dairy consumption, assuming macronutrients and calories are controlled for.

In other words, don't deprive yourself of dairy. There's no reason to be wary of it as long as (*surprise!*) you practice moderation.

—Kamal Patel, MPH, Director of Examine.com



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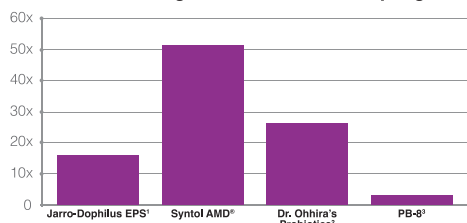


Figure 1

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Another inch or two on your ROM can lead to huge gains in strength and lean muscle.

## LONGER & STRONGER

Use these simple hacks to increase your range of motion while accelerating gains in size and strength.

BY JOSH BRYANT, MFS, CSCS, PES

**E**very gym has at least one. You've seen him, but hopefully you aren't him. It's the guy who lifts entirely too much weight, allowing his ego to overrun all rational thought. He'll strain, he'll sweat, he'll rock and contort his body and scream loudly, all in an effort to move the bar or dumbbells just a few measly inches at best.

Stopping your reps short, of course, allows you to lift more. You can tell yourself how strong you are and how you just crushed a new personal best. And as long as you don't have to prove it by demonstrating your heaps of strength to others, all will be well.

Well, not really. Study after study proves what's a relatively obvious fact: A greater range of motion produces greater gains in strength and hypertrophy. Repping through a longer range of motion, after all, means the muscles are under stress longer — otherwise known as time under tension — leading to not only greater amounts of muscle damage but also the resulting repair and growth.

### LONGER EQUALS STRONGER

Mike MacDonald held the world record in the bench press in the 242-pound weight class for close to three decades.

An interesting fact on MacDonald is that he actually invented a specialized bar with a camber in the middle to increase his bench-press range of motion. When asked about it, he couldn't be more emphatic: This bar is what helped him build such hellacious pressing power.

And it's not just benching. Virtually all great deadlifters in powerlifting history have used extended-range-of-motion deadlifts to increase their starting strength off the floor. Many of the greatest squatters have used deep "pause" squats, including the legendary Ed Coan.

A host of bodybuilders have used longer ranges of motion to their advantage, as well. Gustavo Badell, who won three IFBB pro shows over a 14-year career and came in third at the Mr. Olympia twice, had impeccable hamstring and back development in his prime. His not-so-surprising secret? "I do my deadlifts standing on a deadlift platform so I can get a much deeper stretch and a better range of motion."

Whether your main goal is strength, stamina, size or function, extending your range of motion pays dividends. Here are a few alternatives to common exercises that you can use to get the most out of every millimeter of movement.

### DEFICIT DEADLIFT

For these, stand on a one- to three-inch elevated surface to do your reps. If you don't have a platform, trade out your 45-pound plates for 25- or 35-pound plates (which allows you to get lower to the floor in the down position) or use a wider snatch-grip technique. For hypertrophy, work in a six- to 12-rep range; for strength, stay in a one- to five-rep range.

### OLYMPIC PAUSE SQUAT

Take a narrow stance with a high bar position and squat as deep as possible, pausing for one second in the hole. For hypertrophy, go for five to 10 reps each set; for strength, do one to five reps per set.

### DUMBBELL BENCH PRESS

Bench-pressing with a barbell limits your range of motion, meaning you'll want to include dumbbell presses in your chest routines. Instead of fixating on the weight of the dumbbells you're handling, focus on the stretch at the bottom of the movement.

### INCLINE DUMBBELL LATERAL RAISE

For shoulders, opt for incline dumbbell lateral raises over traditional lateral raises. Be sure to accentuate the stretch at the bottom of the movement. Aim for 10 to 15 reps per set.

### INCLINE DUMBBELL CURL & NEUTRAL-GRIP DUMBBELL LYING TRICEPS EXTENSION

To bomb your biceps, try incline dumbbell curls, emphasizing the stretch at the bottom of each rep. For triceps, instead of barbell skullcrushers, try neutral-grip dumbbell lying triceps extensions to the sides of your head, again emphasizing the stretch. Both movements can be performed for eight to 15 repetitions. ■



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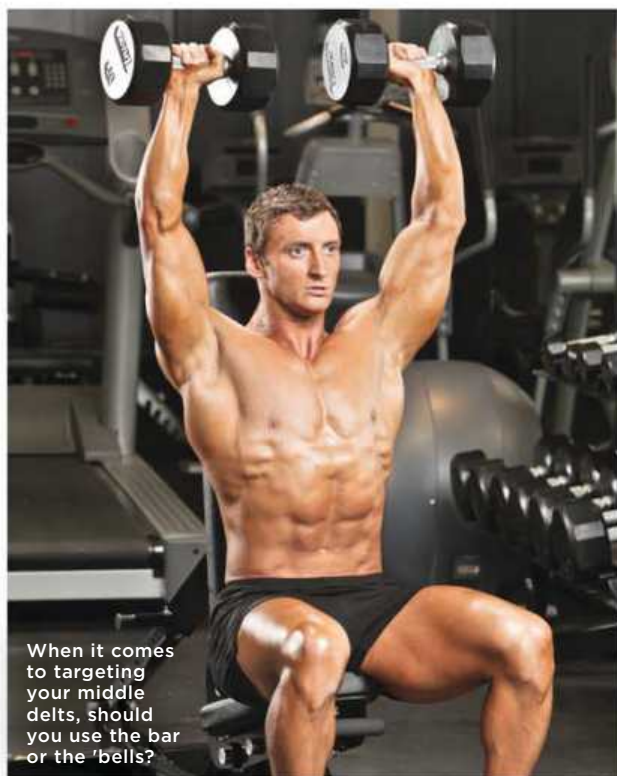


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When it comes to targeting your middle delts, should you use the bar or the 'bells?

# BEST PRESS

Pushing heavy weight overhead is generally a good thing to do. But could your choice of equipment be hindering your gains?

BY TEAM M&P

**W**ell-built middle delts are anatomical gold for physique-minded athletes, enhancing the overall shape of the shoulders and providing the illusion of a smaller waistline. But how should we best train these muscles? Well, the argument could be made for lateral raises, which allow you to target the middle delts in relative isolation. However, that same isolation limits how much intensity (read: weight) you can train with. A better bet, as with most muscle groups, is to start with a compound move that targets the middle delts. Enter the overhead press.

Free-weight overhead presses allow for the use of more weight due to the contribution of other muscle groups, which directs greater tension to the middle delts. As such, overhead presses should come first on most shoulder days, with targeted lateral raises for the middle, front and rear delts following close behind.

But which version of the overhead press is best for emphasizing the shoulder-widening middle delts? Does it matter whether you use dumbbells or barbells? Let's examine the facts and determine which move is best for keeping those middle delts capped out.

## DUMBBELL OVERHEAD PRESS

Arguably the greatest benefit of dumbbells is that they allow a greater range of motion than a barbell does. With that

comes greater time under tension and recruitment of the traps, which act to raise the shoulder blades. Using dumbbells also summons more stabilizer muscles to perform the move. In other words, more total muscle fibers are hard at work to perform the dumbbell overhead press. Most of the time this exercise is done seated, but you can also perform it standing, which allows you to go slightly heavier by using your lower body and core to a greater extent.

## BARBELL OVERHEAD PRESS

The barbell overhead press is a great multijoint exercise that works all three delt heads. If you don't have a military bench, try to work inside a power rack where you can adjust the safeties up or down so it's easy to rack the bar at the end of each set. Take a wide, overhand grip on the bar and be sure to wrap your thumbs around it for safety. If you're new to this move or you've relied mainly on dumbbells for your overhead presses, be aware that you'll have to lean your head back slightly on each rep to get your chin out of the way of the bar. However, be careful to avoid leaning too far back because that could cause undue stress on your lower back and cervical spine.

## WINNER: DUMBBELL OVERHEAD PRESS

Both moves are multijoint in nature and typically done first in your shoulder routine. Two or more sets of muscles and joints work together, in this case the muscles that attach to the elbow and shoulder joints, so the triceps assist. In case you missed it above, dumbbells require the most coordination but also allow the most freedom. Because you keep your elbows out to your sides during standard dumbbell overhead presses, the emphasis remains primarily on the middle delts. In contrast, the standard barbell overhead press requires you to bring the bar in front of your face to your upper chest. If you follow the path of the elbows, you'll notice that they travel a bit more forward, calling upon the front delts to a greater extent. So although you can move more weight with a barbell, the winner in the middle-delt category is the dumbbell version. ■

## WIDER BY DESIGN

Use this press-first approach to better target your middle delts.

EXERCISE	SETS	REPS
Dumbbell Overhead Press	4	6-8
Dumbbell Lateral Raise	4	10 <sup>1</sup>
Machine Reverse Flye	3	10-12
Dumbbell Front Raise	3	10-12
-superset with-		
Dumbbell Upright Row	3	To failure
Dumbbell Lateral Raise	1	100 <sup>2</sup>

1 After reaching initial failure on your final set, drop the weight by 20 to 30 percent and continue repping to failure.

2 Using a weight that you can handle for 20 to 25 reps, perform as many sets as necessary to reach 100 reps, resting no more than 30 seconds between work segments.



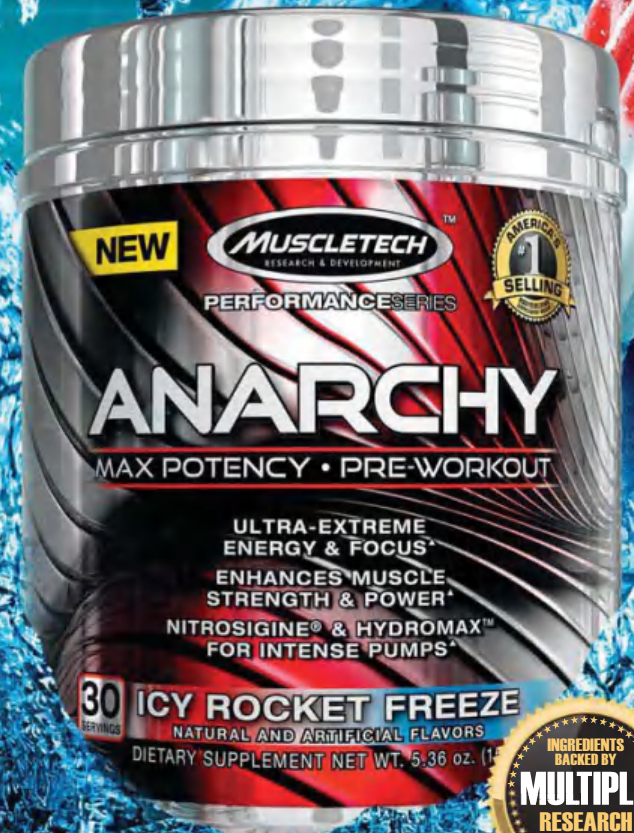
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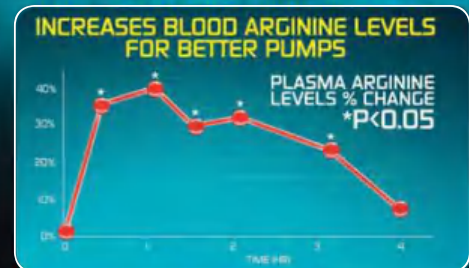
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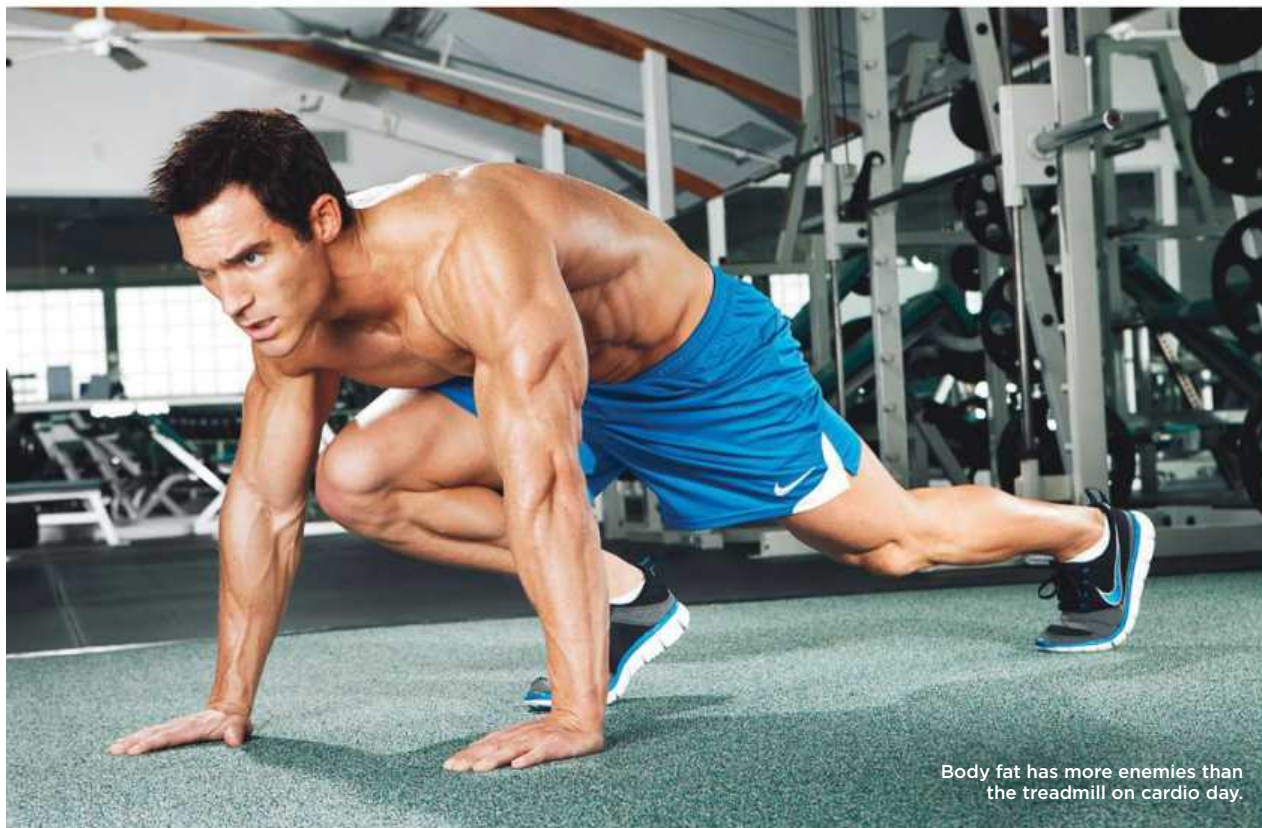
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Body fat has more enemies than the treadmill on cardio day.

# THE NO-TREADMILL SOLUTION TO GETTING LEAN

Get as lean as you want to be without waiting on cardio row at rush hour.

BY ERIC VELAZQUEZ, CSCS

**N**o surprise: Running is one of the most effective activities for burning fat. It makes sense that the overall scorch would be greater because running — even if you don't do it well — involves the careful coordination of the limbs and the engagement of the core to stabilize the hips in stride. Science supports this, with a 2003 study in Great Britain finding that subjects running on a treadmill burned a higher amount of fat than those who trained using a stationary cycle.

Unfortunately, running isn't for everyone — some have pre-existing conditions that pavement-pounding could exacerbate — but that doesn't mean there aren't other fat-busting cardio options. Unless you've been bugged out at your mountain bunker, you know that short bouts of intense exercise have been shown to increase fat burning, elevate resting metabolism and preserve muscle. Plus, they're easy to do. By using your own bodyweight and some easy-to-find gear, you can get a fantastic home-based cardio workout, sans treadmill.

This workout requires maximal effort on each exercise but never for more than a minute. For the resistance-based moves, you'll start with the most demanding exercise — the squat jump — and work your way down to one that's less challenging for more reps. You'll alternate these exercises with timed cardio activity, moving from a 30-second segment to 45 seconds, then up to 60 seconds.

The entire circuit, which lasts less than five minutes, should be repeated five times total for maximum effect. You'll recover with 30 to 60 seconds of rest between circuits. (The hardcore can shorten this, if necessary, to keep hearts and lungs working overtime.)

This workout is proof that you don't always need a treadmill to burn more fat. Sprinkle it in two to three times a week — either after weight training or on dedicated cardio days — to issue a pre-emptive strike on the coming holiday feasts. ■

EXERCISE	REPS/TIME
Squat Jump	10
Burpee	30 seconds
Kettlebell Swing	20
Jump Rope	45 seconds
Speedskater	30 total
Mountain Climber	60 seconds

Rest no more than 60 seconds between circuits (optional). Repeat five times total.

**BUILDING BLOCK:** Add another trip through the circuit each week, or try seeing how many rounds you can complete in 20 minutes.



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Mastering this trick can help you improve workout efficiency and results.

# LISTEN TO YOUR HEART

Your heart rate — resting *and* working — is worth monitoring because you can use the information it reveals to reach your fitness goals faster.

BY KARLA DIAL

**C**hances are pretty good that if you regularly read this magazine, you already know a thing or two about your own heart rate; after all, you make a concerted effort to raise it several times a week to improve or maintain your body composition. You may also know one or more ways to find your heart rate. The most common is to lightly place your index and middle fingers on the palm side of your opposite wrist until you feel a pulse. Keeping your eyes on a clock for six seconds, count the number of beats and then add a zero to the end to find your beats per minute (bpm). You may even know the mathematical formula to determine your maximum heart rate (220 minus your age) and be able to calculate your

target training intensity (220 minus your age, multiplied by the percentage you're aiming for). Let's say you're a 38-year-old athlete who has a maximum heart rate (MHR) of 182 (220 - 38). To train between 65 and 75 percent of your MHR, you'd try to keep your bpm between 118 and 137 (220 minus 38 multiplied by 0.65 and 0.75, respectively).

Those are the basics, and at best they'll give you a ballpark figure that you can try to meet in the gym. But if you get to know just a little bit more about your own heart rate, you can pinpoint your target heart rates more accurately and reach your goals more quickly.

To do that, you need to find your heart-rate reserve (HRR), which is simply the difference between your MHR and resting heart rate (RHR). To calculate your RHR, take your pulse for one minute right after waking up in the morning, before you get out of bed. (If you have a severely annoying alarm clock, turn it off and lie quietly for five minutes before taking your pulse, as alarms tend to elevate heart rate.) Do this five mornings in a row, then calculate the average. The result is your RHR, and the better your cardiovascular fitness, the lower that number will be. Then you can use it in what's called the Karvonen formula:

$$(HRR \times \text{training percentage}) + RHR = THR$$

Say you find that you have an RHR of 55 and you still want to train between 65 and 75 percent of your MHR. You would first find your heart-rate reserve by subtracting your RHR from your MHR (182 - 55) and get 127. To find your target heart-rate range, you'd do the following calculations:

$$(127 \times 0.65) + 55 = 138 \text{ bpm}$$

$$(127 \times 0.75) + 55 = 150 \text{ bpm}$$

Notice the results here are significantly higher than the more widely used formula mentioned earlier. By taking RHR into account, you've just discovered that you can push yourself harder than you thought, translating into better cardiovascular and physique results in less time.

Yes, that's a lot of math, and it can be pretty difficult to take your distal pulse in your wrist while jogging on a treadmill, which is why virtually every piece of cardio equipment you find in a commercial gym comes equipped with a heart-rate monitor. But don't trust it, says Jim Ryno, a celebrity trainer and founder of LIFT, a chain of private personal-training gyms in New Jersey and New York City.

"They test them on bigger guys who are in shape, so the numbers are always going to be inflated," he says. Even when you program your weight into the machine, "there's no way it can take into account your actual intensity," Ryno explains.

Better to invest in a wireless heart-rate monitor such as those by Fitbit, Garmin or Polar that you can program with your real information, and leave the sweaty handgrips to the next big guy who comes along. ■

## CARDIAC KEY

BPM: beats per minute

MHR: maximum heart rate

THR: target heart rate

RHR: resting heart rate

HRR: heart-rate reserve



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## [PRO CORNER]

**"I maintain intensity by doing a lot of supersets and drop sets"**



# RICH GASPARI

Rich Gaspari proves — again! — that you can't keep him down.

BY JERRY KINDELA, MA, DHS

**F**ew bodybuilders embody Arnold Schwarzenegger's quote, "Start wide, expand further and never look back" quite like Rich Gaspari. After he nailed the 1984 Mr. Universe title at the age of 21, a high-ranking magazine editor opined that the bodybuilder had reached the zenith of his career. That opinion was egregiously wrong. Gaspari has always found a way to move forward despite much larger competitors, marriage devolutions, lawsuits and a bankruptcy filing for Gaspari Nutrition in October 2014. Just as he had rebounded in the past, by year's end the iconic bodybuilder known as The Dragon Slayer had found a savior in Allegro Nutrition LLC, an Ireland-based nutrition product distributor that partnered with him, infusing significant capital for future growth. We reached out to Gaspari to catch up on this new chapter in his life.

**At press time, gasparinutrition.com was undergoing a rebuild. What will we find on the website when it finally launches?**

Of course, we will showcase our ever-expanding product line. But we also want to make it a site where people can get information about training, nutrition, diet and supplementation. Gasparinutrition.com wants to establish itself as a fitness authority that provides reliable information to fitness-minded individuals.

**Care to provide some details as the company restructures?** I'm still president of the company and I've partnered with Allegro, which makes it a lot easier for me because it's affiliated with Total Produce, the multibillion-dollar parent company of Allegro. [Editor's note: Total Produce positions itself as

"Europe's premier fresh produce provider."] This enables me to expand the Gaspari line of products, increase research and development and innovate much more extensively.

## How will Gaspari Nutrition innovate?

Gaspari Nutrition had the reputation of delivering cutting-edge products that led the bodybuilding market. We used ingredients long before they became more broadly available elsewhere. With the new partnership, we found ways to maintain quality in the products at an improved price point, generate better offers to consumers and expand our marketing beyond the bodybuilding sector. Thus far, we've come up with a new testosterone booster and a new pre-workout supplement that contains an arginine inhibitor, which allows nitric oxide to do its job more effectively. We're also expanding into other markets. For example, we've come out with a high-quality high-protein, low-fat and high-fiber cookie. We're also going to expand the brand to offer a women's category and a greater range of products that fit into the natural ingredients category. As you can see, the key word for this new partnership is "innovation."

## You've been in this business for three decades, at least.

### How is your training different today?

Above all, I'm consistent. Unlike a lot of bodybuilders who reach a certain age and slow down, I continue to train five days a week. I continue to eat six meals a day, keeping it clean. Of course, when I was younger I trained a lot heavier, but I'm still strong and I maintain intensity by doing a lot of supersets and drop sets. I'm also aware of protecting my joints with supplements. ■

## DRAGON SLAYER LEGS

Muscle through this workout to build Gaspari-sized pins (and develop an unnatural fear of stairs for the next week).

EXERCISE	SETS	REPS
Leg Extension	4 <sup>1</sup>	15-20 <sup>2</sup>
Barbell Squat	4	15-20
Leg Press <sup>3</sup>	3-4	15-20
Smith-Machine Reverse Lunge <sup>4</sup>	3-4	10 (each leg)
Lying Leg Curl	4-5	15-20

*1 Does not include two warm-up sets done with a lighter weight.*

*2 On the final set, after reaching initial failure, drop the weight 20 to 30 percent and continue performing reps until you reach failure again.*

*3 Perform these with your feet higher on the platform to emphasize the glutes.*

*4 Take a longer-than-normal step rearward to trigger greater engagement of the glutes.*

## RICH GASPARI

**Birthdate:** May 16, 1963

**Current City:** Toms River, N.J.

**Height:** 5'9"

**Weight:** 220 pounds

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## [ BRAND SPOTLIGHT ]



# GET TO KNOW: VEGA

BY JILL SCHILDHOUSE

**YEARS IN BUSINESS** 14

**NUMBER OF EMPLOYEES** 160

**BEST-SELLING PRODUCTS** Vega Sport Performance Protein, a multisource, plant-based protein powder featuring 25 grams of complete protein and 5,000 milligrams each of BCAAs and glutamine per serving; and Vega Sport Pre-Workout Energizer, a drink mix that provides immediate and sustained energy via a blend of 12 synergistic plant-based, performance-improving ingredients such as green tea, yerba mate, coconut oil and rhodiola.

**NEWEST PRODUCT** In January 2015, Vega reformulated its best-selling nutritional shake, Vega One. Made from whole-food, non-GMO ingredients, Vega One provides 20 grams of premium plant-based protein (pea, hemp, SaviSeed and flax proteins), six servings of greens, 50 percent of the recommended daily value of food-based vitamins and minerals, fiber, omega-3 fatty acids, antioxidants and probiotics. It has only 160 calories, all in one delicious scoop.

**COMPANY MISSION** In line with its vision to empower the world to thrive, Vega's mission is: 1) to share its passion for clean, plant-based nutrition through education and leading by example; 2) to deliver premium, innovative, industry-leading wellness solutions to its valued customers; 3) to live its commitment to constant improvement by pursuing perfection, one small change at a time; and 4) to foster a fulfilling, inspiring workplace for Vegatopians (Vega employees) that's sustainable for all people, the company and the planet.

"Vega's goal is to help you be better every day," says Erin Forber, brand manager. "Whether you're a bodybuilder, fitness competitor, CrossFitter, gym rat, runner, cyclist, swimmer or ultimate Frisbee champ, clean, plant-based nutrition in the Vega Sport Performance System can help you 'fuel your better'. When you're not training, Vega offers a line of nutritional shakes, bars and supplements to help you fit clean, plant-based nutrition into your busy life."

**COMPANY HISTORY** Vega was co-founded by Brendan Brazier, a former professional Ironman triathlete, nutrition coach and best-selling author of the *Thrive* series on plant-based nutrition. While constantly on the road competing, Brazier was challenged by a lack of both time and kitchen space to prepare the carefully composed, nutrient-dense, clean, plant-based meals that gave him his edge. Over time, his vision led to the formulation of the original on-the-go, all-in-one nutritional shake now known as Vega One.

**BRAND BELIEVERS** As a lifestyle brand, Vega has established a deep connection with passionate brand ambassadors across the continent, including celebrities, professional and Olympic athletes, health practitioners and consumer fans who share a common belief that clean, plant-based nutrition can help you achieve your health and performance goals. These include professional MMA fighter Heather Jo Clark and former MLB All-Star baseball player Brian Roberts.

**VEGA ADVANTAGE** All Vega products are clean, plant-based, gluten-free and vegan, and made without dairy, soy or artificial colors and flavors. The company strives to source only minimally processed, non-GMO ingredients.

**ONLINE EDUCATION** On myvega.com you can find everything from a collection of relevant training and performance blog posts written by health, nutrition and performance experts to customized product recommendations to complete nutrition and fueling plans for those who participate in strength and conditioning or running. ■



# GET IN THE ZONE WITH ENERGY TO BURN.

Take *Vega Sport Pre-Workout Energizer* 20 minutes before your workout to increase energy and mental focus.

12 FUNCTIONAL  
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#### GREEN TEA AND YERBA MATÉ

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#### SPROUTED WHOLE GRAIN BROWN RICE SYRUP

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<sup>†</sup> Jowko E, et al. (2011). Green tea extract supplementation gives protection against exercise-induced oxidative damage in healthy men. *Nutrition Research*. 31(11) 813-821.



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# MASS GAIN *MADE SIMPLE*

---

*IT MAY TAKE A LOT OF WORK IN  
THE GYM AND A LOT OF FOOD ON  
THE PLATE, BUT BUILDING MASS  
IS A STRAIGHTFORWARD PROJECT,  
ONCE YOU HAVE THE RIGHT PLAN  
FOR YOUR BODY TYPE.*

---

BY JORDANA BROWN | PHOTOS OF  
ROB RICHES BY NOEL DAGANTA



O K, gaining mass isn't *that* simple. You need to know how to eat, and you definitely need to know what to take to supplement your diet and exercise program. And that means you need one of our straightforward mass-gain plans, outlined below.

## THE EASY-GAINER: SLOW AND STEADY

Frankly, there's no real reason to gain weight slowly. This technique isn't for those who have all the patience in the world. Instead, the Slow and Steady method of mass gaining is for those who gain fat a little more easily: Guys who have aged out of the lightning-fast metabolism that the young bucks enjoy, those who are born endomorphs and have to be careful about their calorie intake, and anyone who is close enough to competition (or bathing-suit season) to want to put on pure mass without adding extra layers of flab.

### TRAINING

We assume you know that training for mass requires mixing things up so that your muscles are continually kept guessing. That process of systematically cycling your training is called periodization. One of the most common variables to cycle is the amount of weight you lift, and therefore the number of reps you can complete per set. Heavier weights yield lower numbers of reps; lighter weights, higher reps.

This training plan includes four phases:

**PHASE 1:** Choose a weight with which you can get 12 to 15 reps per set.

**PHASE 2:** Choose a weight with which you can get 10 to 12 reps per set.

**PHASE 3:** Choose a weight with which you can get eight to 10 reps per set.

**PHASE 4:** Choose a weight with which you can get six to eight reps per set.

In each phase, remain within the prescribed rep range for all exercises, and spend about two weeks in each phase for a total of an eight-week training program.

Train each bodypart once per week, breaking it up into a four-day split where you target related bodyparts (like chest and triceps) on the same day. This allows you to hit your larger muscle groups hard and heavy at the outset with assistance from smaller muscle groups that get direct work later in the session. This adds both volume and intensity, which is part and parcel of any mass-gain program.

Ideally, you'll want to do 12 to 16 total working sets for larger body parts such as chest, back, quads and hamstrings, while performing nine to 12 total sets for smaller body parts. Generally, this should be divided over two to four exercises so that you can hit each muscle from a variety of angles. And it should go without saying that if mass is your main concern, your focus should be on multijoint exercises that allow you to use the most weight for the target number of reps. In other words, 16 sets of cable flyes isn't going to be as

effective as, say, 12 sets of angled presses and dips followed by four sets of flyes.

As for cardio, we bet you were counting on us telling you that because this is a mass-gain plan, you don't have to do any. Sorry! To ensure that you gain quality muscle and don't put on fat, you should do a little bit of cardio, namely 15 to 20 minutes of HIIT (high-intensity interval training) three times per week.

### NUTRITION

Because this plan entails gaining mass at a more reasonable pace, there's only a small bump in calories on the nutrition side. Aim to get between 18 and 20 calories per pound of bodyweight, which equates to between 3,240 and 3,600 calories per day for a 180-pound man (multiply calories by pounds, or 18 x 180).

Because you can't build muscle without protein, take in 1.5 grams of protein per pound of bodyweight (1.5 x 180 pounds = 270 grams per day). Carb intake should remain moderate, between 1.5 and 2 grams per pound of bodyweight, or 270 to 360 grams for the 180-pound man. Focus on slow-digesting, whole-grain carbs such as oatmeal, whole-wheat bread and brown rice, and limit your carb intake after dinner. Fat intake should stay low, at 0.5 gram per pound of bodyweight.

Most mass-seekers prefer to take in all these calories in five to seven feedings throughout the day, but studies show that three meals per day can be just as effective.

The right supplement plan is also key if you expect to pack on clean mass, as opposed to 20 pounds of mixed goo. For an all-day supplement schedule, turn to page 51.

*"IT GOES WITHOUT SAYING THAT IF MASS IS YOUR MAIN CONCERN, YOUR FOCUS SHOULD BE ON MULTIJOINT EXERCISES THAT ALLOW YOU TO USE THE MOST WEIGHT."*

## THE EASY-GAINER CALORIES + MACROS PLAN

**PROTEIN:** 1.5 grams per pound of bodyweight

**CARBOHYDRATES:** 1.5-2 grams per pound of bodyweight per day

**FAT:** 0.5 gram per pound of bodyweight per day

**CALORIES:** 18-20 calories per pound of bodyweight per day



**MUSCLE FOR METABOLISM:** Adding new muscle upgrades your body's ability to burn fat. Getting bigger actually makes it easier for you to get leaner.







**GOING COMPOUND:** Multijoint moves such as squats, presses, rows, pull-ups and dips allow you to stimulate (read: grow) as much muscle as possible on each rep.





# SPLIT TO GROW

Day 1: Chest + Triceps + Abs

Day 2: Quads + Hams + Calves

Day 3: REST

Day 4: Shoulders + Traps + Abs

Day 5: Back + Biceps + Forearms

Days 6 & 7: REST

*This straightforward mass-gain split is ideal for either plan.*

## THE HARDGAINER PLAN: FAST AND FURIOUS

It's not that you're any more dedicated or in a bigger rush than those who are following the slower route to mass. In fact, your journey might actually be more difficult, filled with more hard work in the gym and more careful caloric calibration. That's because guys who need to take this path to mass are most likely hardgainers, natural stick people (aka ectomorphs), young dudes with fast metabolisms who struggle to gain any weight, or those who plan to spend the next few months wrapped in sweaters and jackets and therefore don't care about how defined their abs look.

### TRAINING

You gotta hit the gym, and you gotta hit it hard. Get ready for some intensity techniques. Here's how.

You'll follow the same four-day split as the Slow and Steady crew, but instead of cycling weights you'll pick a weight you can get eight to 12 reps with. Do one warm-up set per exercise, then go to muscle failure on every set except the last one or two. On those, really stress the muscle by doing either a drop set or the rest-pause technique. The same guidelines on total training volume apply, with larger bodyparts getting 12 to 16 total sets of work and smaller ones getting nine to 12.

**REST-PAUSE:** Rest-pause simply means you terminate a set a few reps shy of

momentary muscular failure, rest 15 to 25 seconds, then continue the set again using the same weight. This process is repeated multiple times for a fragmented set with a higher rep total. For example, instead of performing three sets of eight reps on the bench press with 225 pounds, you might perform five reps, rest 20 seconds, then repeat this process four more times before taking a two- to three-minute break. By the end of this rest-pause set, you'll have completed 25 total reps instead of your originally targeted eight. Of course, total reps will vary depending on overall strength and conditioning. This system takes advantage of your body's explosive energy system (phosphagen), which replenishes fairly quickly — although not completely — between bouts of work.

**DROP SET:** On a drop set, go to failure with the original weight you've been using to get eight to 12 reps. Then immediately drop 20 to 30 percent of the weight and go to failure again. You can perform multiple drops, but two to three is generally sufficient to create the stimulus you're looking for. This process allows you to train your muscles beyond failure, creating more microtrauma to the fibers, which paves the way for more muscle gain during recovery.

### NUTRITION

The overarching goal of this nutrition plan is to bump insulin levels and keep them high. Sound scary? The truth is, hardgainers don't have a problem with their insulin levels, and because it's an

anabolic hormone, we're going to put it to work for you with fast carbs and (see "Mass Made Easy" on page 51) an insulin booster.

But first, the calories. You've got to eat more to gain, so Fast and Furious trackers get to consume between 21 and 23 calories per pound of bodyweight. Let's say our typical hardgainer tops out

at 150 pounds. Multiply that weight by 21 and you get 3,150 calories; multiply it by 23 and you get 3,450. Protein intake remains critical, so we recommend you eat between 1.5 and 2 grams of protein per pound of bodyweight (between 225 and 300 grams per day). Carb intake is also increased, to between 2.5 and 3 grams per day. Fat remains low, at

0.5 gram per pound. (Those grams should be primarily of the healthy, monounsaturated or polyunsaturated variety).

As with the easy-gainers, you can go the traditional "three squares" route, or you can divide your calories and macros up over five to seven meals and snacks throughout the day.

## THE HARDGAINER CALORIES + MACROS PLAN

**PROTEIN:** 1.5-2 grams per pound of bodyweight

**CARBOHYDRATES:** 2.5-3 grams per pound of bodyweight per day

**FAT:** 0.5 gram per pound of bodyweight per day

**CALORIES:** 21-23 calories per pound of bodyweight per day



"THE  
OVERARCHING  
GOAL OF THIS  
NUTRITION PLAN  
IS TO BUMP  
INSULIN LEVELS  
AND KEEP THEM  
HIGH. BECAUSE  
IT'S AN ANABOLIC  
HORMONE,  
WE'RE GOING TO  
PUT IT TO WORK  
FOR YOU."






**NEXT-LEVEL TRAINING:** Advanced techniques are key for hardgainers but should still be used sparingly. Overusing these techniques can work against you in the long run.

**ISO-LATER:** Targeting individual muscle groups with isolation work should still be part of your routine but only after your heavier, compound work.







"TO ENSURE  
THAT YOU  
GAIN QUALITY  
MUSCLE AND  
NOT FAT, DO  
A LITTLE  
CARDIO,  
NAMELY 15  
TO 20  
MINUTES OF  
HIIT (HIGH-  
INTENSITY  
INTERVAL  
TRAINING)  
THREE TIMES  
PER WEEK."

# THE MASS LIST

*Don't overcomplicate things. Follow the guidelines outlined in this article and adhere to these simple, proven principles of packing on size.*

- 1. STAY COMPOUND:** Focus on multijoint movements such as presses, rows, squats, pull-ups, dips and deadlifts. These exercises not only build greater strength but also target more muscle, burn more calories and trigger a greater release of testosterone and growth hormone, which contribute to greater muscle gain.
- 2. GO BIG FIRST:** Single-joint, or isolation, exercises such as flyes, extensions and curls have their place in a mass-gain program but should be done after your heavier, multijoint moves.
- 3. INSIST ON PROGRESS:** You should always strive to handle the most weight you can for the prescribed rep ranges. Even if you're on a two-week cycle, you may find that you can increase weight each week, which is ideal for improving strength and size.
- 4. CHECK YOUR VOLUME:** Some rare athletes may be able to get away with doing 25 to 30 sets per body part, but this is simply not advisable for most individuals. For most, the ideal volume is 12 to 16 total sets, divided over multiple exercises, for larger muscle groups such as chest, back and legs. Smaller body parts can be sufficiently stimulated with nine to 12 sets. You grow while you recover, not while you train.
- 5. REST:** On the days where rest is outlined, you should do exactly that. There's little benefit derived from tacking on an additional session for a lagging bodypart as this will, again, impede overall recovery and hinder gains.
- 6. SUPPLEMENT RIGHT:** Our comprehensive supplement plan on page 51 will educate you on which supplements to take and when, while also providing the most effective dose. Supplements fill in gaps as you strive to reach your daily caloric and macronutrient goals and provide welcome jumps in performance and hormones that facilitate hypertrophy.
- 7. BE STRICT:** Of course, you should be strict with your diet and only feed your muscles nutrients it can use for growth, but you should be equally strict with your form in the gym. When gaining mass, there's a temptation to overdo it with weight loads, which leads to poor form and invites injury. Better to maximize muscle stimulation by using the heaviest weights that you can control at a given rep range than to sideline yourself with a catastrophic injury. ■







# Beat the **WHEAT**

---

IF GLUTEN TURNS YOUR STOMACH AND ZAPS YOUR STAMINA, **SWITCHING OUT THE WHEAT MAY GIVE YOU A SERIOUS TRAINING EDGE.**

BY MATTHEW SOLAN

**J**osh Coe discovered his gluten sensitivity the hard way. He labored through the weight room with zip for energy, and had dark circles engraved under his eyes and a weight that ballooned from his normal 200 pounds all the way to 240. At a loss to explain his diminished condition, his friends suggested he examine his diet. "They noticed that when I drank one beer, I would have a hangover the next day. When I ate a pancake breakfast, sometimes I would throw up afterward," says Coe, 34, who has been lifting for nearly 20 years.

A quick self-analysis pointed the finger at gluten-rich wheat. Any foods containing it made him sick, gassy and irritable. So he cut it out: No more wheat. And just like that, he could stick to hard, hourlong sessions four days a week and soon shrank his physique back to a lean and chiseled 200 pounds. "Once I stopped putting the poison in my body, I was able to heal and get the most out of my training," says Coe. "I could go through both the bulk-up and cut-up phases with no physical or digestive issues."

You've heard about going gluten-free (GF), probably even read about it and might know someone who follows this eating plan that has become the latest diet craze. After all, gluten-free has become big business. Entire aisles of grocery stores are filled with gluten-free products and many eateries have "GF" next to items on their menus. Sales of GF foods hit \$4.2 billion in 2012, a 3 percent increase from 2010, according to market research publisher Packaged Facts. Odds are there's a gluten-free choice for almost anything wheat-related, and this makes going gluten-free easier than ever before.

But can gluten-free really help you hit your mark in the weight room? "Strength athletes are always looking for an extra 1 to 2 percent to help them out. And constructing a diet around a

potential food allergy or intolerance can often give them the edge they need," says pro bodybuilder and coach Layne Norton, PhD.

## Gut-Check Time

Before you dive into a gluten-free lifestyle, you need to know the full story behind gluten.

Gluten is a combination of two proteins, gliadin and glutenin, found in the endosperm of wheat (including spelt, kamut, farro and bulgur) as well as barley and rye. It's ground into flour used to make bread, pizza, cereal, pasta, pastries and cookies. Gluten is what gives these foods their doughy elasticity and chewy texture. Then there are the sneaky sources you wouldn't necessarily link to gluten, such as processed soups, hot dogs, salad dressings, soy sauce and (gulp) beer.

Gluten isn't bad from a nutritional perspective. It becomes an issue when people cannot properly digest it, a condition called celiac disease. An estimated one in every 133 people, or 1.8 million, has celiac disease, and another 1.4 million have it but don't know it. In fact, a recent study in the *American Journal of Gastroenterology* found that almost 80 percent of people with celiac disease don't yet realize it.

With celiac disease, your immune system attacks the undigested gluten proteins. Antibodies go into action, which flatten the villi, the tiny fingers in the small intestines that soak up nutrients from food. The lining of your small intestine becomes inflamed. This domino effect sets off an avalanche of aches and pains — about 300 symptoms have been identified — with the most prevalent being diarrhea, abdominal pain, bloating and intense fatigue.

Still, celiac disease is somewhat rare. A more common and even more misunderstood gluten issue is non-celiac gluten sensitivity (NCGS). Between



An estimated one in every 133 people, or 1.8 million, has celiac disease. And another **1.4 million have it but don't know it.**



5 and 10 percent of the population have NCGS, according to the National Institutes of Health, University of Chicago Celiac Disease Center. People with NCGS — like Coe — also suffer similar symptoms as celiac disease, but it's due to a negative reaction to digesting gluten. The body can digest gluten, but at a painful price.

A 2012 report in *BMC Medicine* found that people with NCGS also tend to suffer from headaches, mental fogging, irritability, joint pain, and numbness in the legs, arms or fingers. Symptoms often appear hours or days after gluten has been ingested. Fighting fatigue? Battling chronic stomach issues? Feeling bloated and heavy? Gluten might be the problem.

The solution for both conditions is the same: Remove some or all of the gluten from your diet so the gut can heal and begin to absorb nutrients again. "When this happens, your body can efficiently build and repair muscle and other nec-

**Odds are there's a gluten-free choice for almost anything wheat-related,** and this makes going gluten-free easier than ever before.

essary functions during training," says sports nutritionist Jennifer Vimbor, MS, RD, LD.

Still, NCGS is not as black and white as celiac disease. If you have celiac disease, going completely gluten-free is the only way to get relief. With NCGS, you may have a problem digesting high amounts of gluten, you may have trouble with certain gluten foods or you may simply be sensitive to one particular food. It's no wonder that science has trouble grappling with NCGS. "There is a tight definition of celiac disease, but gluten intolerance

has been a moving target," says Daniel A. Leffler, MD, director of clinical research at the Celiac Center at Beth Israel Deaconess Medical Center in Boston.

A simple blood test (although not 100 percent accurate) and biopsy of the small intestine can determine if you have celiac disease. NCGS is trickier because there's no clear-cut test. Instead, if you believe you have gluten sensitivity, you can adopt a full GF diet as with celiac. Or you can try an elimination diet, a trial-and-error process in which you eliminate a specific gluten

## Great Grains

It's not always easy to find products that are wheat-free. Look for foods made with these gluten-free grains, which also supply a powerful nutritional punch.

**QUINOA:** An original superfood used by Inca warriors for an energy boost, quinoa is a complete protein, meaning it contains all nine essential amino acids.



### AMARANTH:

The size of poppy seeds, amaranth has more protein than wheat and two times that of white rice (28.1 grams per cup compared to 13.1 grams). Also, 1 cup has 119 percent of the DV of magnesium needed for protein synthesis and muscle and nerve function.



### OATMEAL:

A longtime bodybuilding staple, oatmeal is also a potent comfort food. Oats are naturally gluten-free but often suffer contamination from being processed in facilities that also process gluten products. Quaker Oats, for instance, admits that they are not gluten-free. If you really like your bowl of oatmeal but find that you can't stomach gluten, seek out a certified gluten-free brand such as Bob's Red Mill.

### MILLET:

This small, round, ivory-colored seed supplies a good dose of fiber (about 2 grams per cup). Millet is also high in the manganese, phosphorus and magnesium necessary for the development and repair of body tissue.



# Gluten-Free Fat Loss

A current joke is that people who claim to be gluten-free for health reasons are really just cutting gluten-heavy carbs to shed pounds. But the weight loss associated with dropping gluten from the menu may not be related to carb calories at all.

A recent study in *The Journal of Nutritional Biochemistry* showed that when two groups of rats were fed high-fat diets containing the same number of calories, but one group was placed on a gluten-free regimen, the GF group showed a reduction in weight gain. Scientists contribute it to an up-regulation in hormones that are responsible for burning fat stores. The gluten-free group also experienced reduced markers of inflammation and insulin resistance.



food or group, like pasta or bread, and monitor your reaction.

Here's how to do it: Keep a detailed account of what food you cut out, how much of it you usually eat and when (lunch, snack, dinner, pre- or postworkout, etc.). Then track how you feel for the hours and days after eliminating that food. Do you notice less cramping? Do you feel less wiped out after a hard workout? If there are no significant changes, try another gluten food and follow the same pattern. Eventually, you should be able to identify the trigger gluten food(s).

If cutting out an entire item is too daunting, try reducing your normal amount by one-half. Often, this change can be enough to produce a positive result. Your timing may also be an issue. Do your symptoms erupt right before or after a training session? "Eating too much and too close to workouts can cause blood to pool and insulin to spike, both of which can cause gastric distress and create havoc on energy levels," says Jim White, RD, ACSM, HFS.

With an elimination diet, you may just find that poor eating habits are the real problem. "I had a client who thought he had a gluten allergy because he always battled bloating," says Norton. "It turns out that it wasn't the gluten that was his problem, but rather that he binged on doughnuts and pizzas. By allowing him to consume it in moderation, he was able to stop binging and the bloating ceased."

## Gluten and Iron

But what about the regular Joe who doesn't have celiac disease or NCGS. Can going GF give you an extra edge?

First, a few facts: Despite the marketing ploys, gluten-free is not a "miracle" diet. It cannot directly make you lift more or longer. "The science is not there. It's just anecdotal information," says White.

What GF can do, however, is help you eat cleaner and break your appetite for crappy, high-fat processed foods. Going full-throttle GF means skipping pizza, pasta, bread, Dagwood-sized sandwiches, cookies and muffins. So if you struggle with weight management, GF can help trim those extra pounds and keep you at an optimal size for training and performances.

However, GF does not mean you're a slave to gluten-free substitutes found in a box on a grocery shelf. Gluten-free pastas, pizza and breads can often contain more calories, but no more nutrients, than their non-GF counterparts. Instead, going GF pushes you into the gold-star rating of healthy eating: fruits and vegetables; legumes, proteins, eggs and milk products; and brown rice and other whole grains such as buckwheat, quinoa, millet and wild rice. In this way, going GF helps feed your body more of the natural good stuff.

Keep in mind that GF is not a green light to overindulge. Yes, your choices are healthier, but even these foods can trigger digestive problems if you're not careful. "You're going to be just as bloated and miserable by consuming 1,000 calories from gluten-free fruit as you would from pasta," says Norton.

If there's one nutritional problem or downside with going GF, it's fiber. Whole wheat is a major source of dietary fiber, which your bowels need to work properly. Fiber helps regulate your digestive system and ensure proper absorption. "The average American diet is deficient in fiber," says Norton. "Men need about 35 grams of fiber a day, which is often tough to hit, especially if you reduce or eliminate quick-to-fix fiber-rich foods such as bread, cereal and pasta."

Yet this is an easy fix. To get the fiber you need, simply increase your intake of high-fiber raspberries, strawberries and apples, as well as lentils, black and lima beans, and vegetables like broccoli



## Get Tested

While non-celiac gluten sensitivity can't be measured with a test, you might identify a food allergy that's tied to gluten. There are two ways, and both are cheap and can be administered by your doctor:

**Blood Test.** This measures your immune system's response to particular foods. It checks the amount of allergy-type antibodies in your bloodstream, known as immunoglobulin E (IgE) antibodies.

**Skin Prick.** Think one type of food is the culprit? This can determine your body's reaction to it. A small amount of the suspected food is placed on the skin of your forearm or back. Your skin is then pricked with a needle and a tiny amount of the food is inserted beneath the surface. If you're allergic, you will develop a raised bump or other inflammatory reaction.



(1 cup steamed equals 5 grams). Or reach for gluten-free grains such as quinoa, millet and amaranth. (See "Great Grains" on page 47.) When your digestive system is at prime operation, you can better absorb the protein, carbs, vitamins, minerals and amino acids you need to feed muscle and build mass. You'll feel stronger and more energetic for training, which leads to more productive workouts and quicker gains.

A big part of going gluten-free is just being more mindful with your nutrition. "You have to read labels and be more savvy about what you consume. You have to review the ingredients for additives that might have gluten," says Coe. "Gluten-free is not a diet, but a lifestyle. You have to live it in order for it to work for you."

The end result is that GF can teach you to cut out the junk and be more diligent about how you fuel yourself. Going gluten-free isn't easy; it takes discipline and keen planning. But much like your training, if you put in the time and dedication, you'll probably see — and in this case, feel — the results. ■

*Matthew Solan is a health and fitness writer in St. Petersburg, Fla.*

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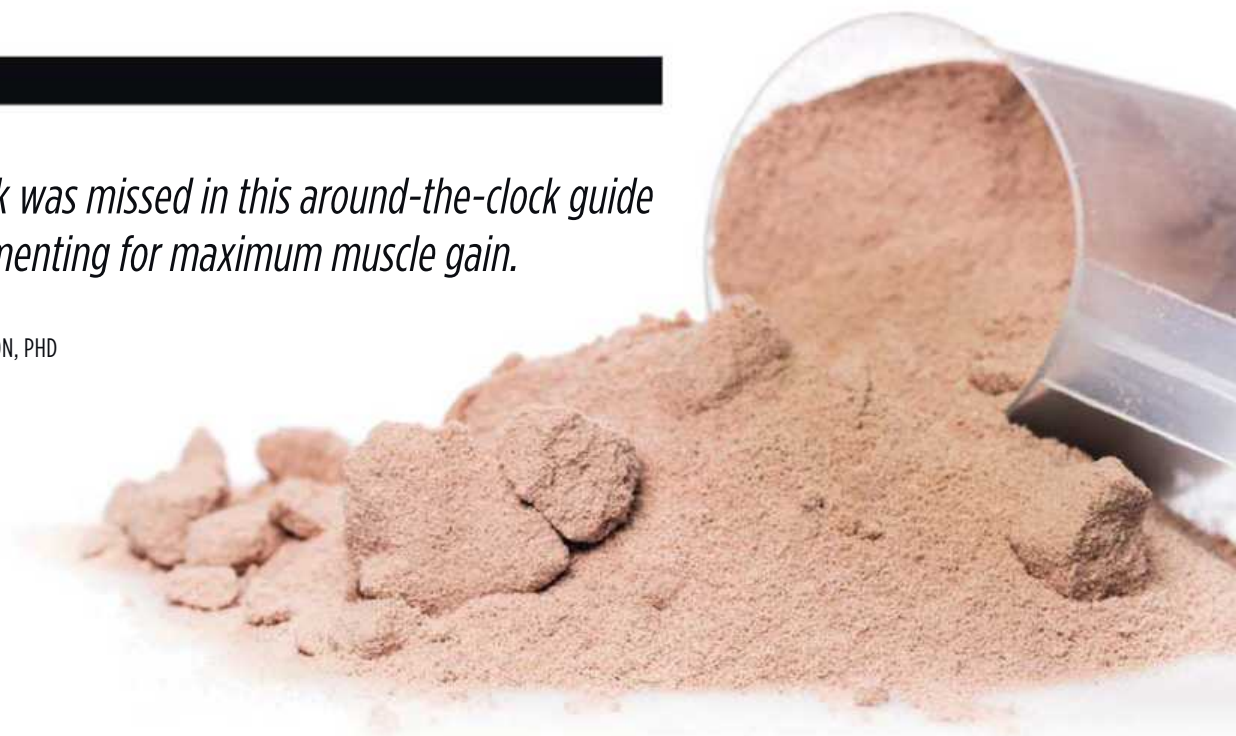


# MASS MADE SIMPLE

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*Not a stack was missed in this around-the-clock guide to supplementing for maximum muscle gain.*

BY DWAYNE JACKSON, PHD





In the not-so-distant past gaining muscle was considered a “hit or miss” science, whereby most successful training programs and diets were created on a trial-and-error basis. With the fitness explosion of the 1990s, however, there was an influx of scientific efforts to maximize athletic performance. As a result, the supplement industry experienced exponential growth, literally flooding the market with new and innovative products. Today, in a gargantuan supplement world, there are many science-backed products designed to push your muscular potential and maximize your gains. This is both a blessing and a curse: You have a ton of choices, but you also have to sift through the good, the bad and the downright useless to come up with the most effective supplement regimen. Read on for a walkthrough of the best supplement stacks to take at key times of the day to amp up your mass- and strength-building efforts. (Editor’s note: This schedule assumes your training occurs in the afternoon and before dinner. Make adjustments as necessary according to your workout time.)

## WAKE & SHAKE

When you roll out of bed your body — especially your recovering muscles — is starving for nutrients. After a seven- to 10-hour fast, you need some fast-absorbing nutrition. Here’s a stack that’ll surely shut down catabolism (muscle wasting) and get your body refueled for growth.

### WEIGHT GAINER

When you’re trying to gain lean mass, you need to pack in as many beneficial calories as possible. Weight gainers provide 500 to 1,000 supplemental calories depending on serving size, and you should choose one composed mainly of high-quality proteins such as whey protein isolate and micellar casein. Ideal weight-gain products are high in protein (50 to 60 grams per serving) and carbohydrates with a modest amount of fat. Because the goal is to gain lean mass and minimize fat accumulation, steer clear of products with more than 50 percent fast-digesting carbohydrates (for example, simple sugars such as high-fructose corn syrup or sucrose) and more than 5 grams of saturated fat per serving.

**DO THIS** Drink one shake immediately upon waking, about 30 minutes to an hour before breakfast.

### CREATINE MONOHYDRATE

No other mass-building supplement works as well as creatine. Research shows that this potent cell volumizer increases muscle water content and glycogen resynthesis, which are signals for anabolism. Creatine boosts the amount of adenosine triphosphate available during exercise, which means you can train explosively for longer, producing greater gains in muscle size in the long run. It also elevates muscle creatine levels for short-term energy and bolsters anabolic signaling through insulinlike growth factor-1 (IGF-1).

**DO THIS** Mix 5 grams of creatine monohydrate into your shake. Most weight-gain formulas already contain small amounts of creatine, but the addition will ensure adequate dosing for faster muscle gains.

### BRANCHED-CHAIN AMINO ACIDS

The BCAAs (leucine, valine and isoleucine) are unique essential amino acids that share a branched-chain structure and are preferentially taken up by skeletal muscle and broken down during exercise. Research indicates that BCAA ingestion directly stimulates anabolism by acting as an anabolic switch. In addition, this supplement trio is anti-catabolic, reduces exercise-induced muscle pain and decreases mental fatigue during intense exercise.

**DO THIS** Mix 5-10 grams of BCAA powder into your weight-gainer shake.





## BREAKFAST STACK

As you plan out your overall nutrition and supplement regimens, remember that whole foods should make up the majority of what you fuel your body with. Supplements are just that: products made to supplement (not replace) a quality diet. Assuming your diet is in check, there are a few key products that absorb more completely when taken with a meal to give your breakfast an extra anabolic kick.

### ESSENTIAL FATTY ACIDS

This group of fatty acids can't be synthesized by the body and therefore must be consumed through diet. There are two families of EFAs: omega-3 (alpha-linolenic acid) and omega-6 (linoleic acid). In terms of mass building, these healthy fats promote growth hormone secretion, increase protein synthesis and increase insulin sensitivity.

**DO THIS** Take 2-3 grams of a balanced omega fatty-acid blend with breakfast.

### MULTIVITAMIN

Micronutrients are essential for proper cellular function and nutrient absorption. Many physique-conscious athletes follow diets that contain very little variety, so a daily multivitamin will ensure you're not lacking in certain micronutrients. Vitamins also act as catalysts for many important internal processes, and since heavy training boosts metabolism, it increases the vitamin requirement needed to catalyze cellular reaction.

**DO THIS** Use a multivitamin formulated for athletes and take as directed on label.

### FORSKOLIN

This active compound in the herb *Coleus forskohlii* is one of the most effective testosterone-boosters on the market. Originally gaining acclaim for its ability as a fat-burner, forskolin has been shown to boost serum testosterone significantly in males.

**DO THIS** Take 20-50 milligrams of forskolin.

### D-ASPARTIC ACID

One study found that D-aspartic acid (DAA) boosts testosterone by up to 40 percent. Increases in testosterone are associated with greater strength and fat loss, making this a must-have for any mass-gain stack. Anecdotally, DAA has been known to cause stomach discomfort for some, so as with any supplement, gauge your own tolerance before making this product a mainstay in your stack.

**DO THIS** Take 1 gram with breakfast.

### L-CARNITINE L-TARTRATE

This stable form of L-carnitine is completely absorbed by the body. Research demonstrates that LCLT supplementation up-regulates the expression of skeletal androgen receptors (the receptors that testosterone binds to) and increases LH (leutinizing hormone) secretion. The end result is greater testosterone and receptors for interaction. LCLT also reduces exercise-induced muscle tissue damage.

**DO THIS** Take 2 grams of LCLT with breakfast.

### BETA-ALANINE

A naturally occurring beta amino acid, beta-alanine is the rate-limiting precursor to the production of carnosine in the body. Research shows that powerful fast-twitch muscle fibers have higher levels of carnosine, which buffers skeletal muscle pH. In one study, dietary supplementation with beta-alanine for two to four weeks was shown to increase vastus lateralis (outer quad) carnosine concentration by more than 60 percent. In terms of performance, science indicates that beta-alanine supplementation for as few as four weeks can result in 13 percent greater gains in total work completed during training; no change was noted among the control group.

**DO THIS** On nontraining days, take 2 grams with breakfast. Before workouts, take 2 grams.

## PRE-LUNCH MUNCH

A few hours after breakfast and about one hour before lunch, think about giving your body a calorie boost. This is an ideal opportunity to load up with nutrients for a busy day.

### WEIGHT GAINER

**DO THIS** Drink one 500-calorie weight-gain shake one to two hours before your high-protein lunch.

## LUNCH

Since we're assuming that lunch comes before your workout in this supplement schedule, you should consume a well-balanced, high-protein, whole-food meal that meets your nutritional needs.

## PREWORKOUT

When training for mass, you want to be sure the body's cellular environment is primed for performance. To achieve this state, there are a number of supplements designed to feed your muscles and minimize catabolism as you train. The following preworkout stack is designed to optimize energy and muscle performance while blunting muscle breakdown during training.





## L-GLUTAMINE

This is the most abundant nonessential amino acid in the body, and years of research have uncovered its several direct and indirect performance-boosting benefits. Glutamine supplementation has been shown to enhance cell volumization and serve as a potent anticatabolic factor and muscle-building aid during heavy training. Its major effects on muscular growth result from the fact that glutamine increases leucine concentration, maintains positive nitrogen balance in skeletal muscle and boosts growth-hormone production. Finally, it augments bicarbonate production to significantly increase skeletal muscle-buffering capacity, thus delaying muscular fatigue during exercise.

**DO THIS** Take 5 grams of L-glutamine one hour before training, on an empty stomach.

## L-ARGININE

In the body, this conditionally essential amino acid's primary role is in nitric oxide production. Thus arginine supplementation elevates skeletal muscle blood flow, especially during workouts, resulting in the more efficient delivery of nutrients and complete metabolite clearing in working muscles, which enables you to work out longer and harder. After exercise and during rest, the augmented blood flow to trained muscles continues to enhance nutrient delivery and flushes out byproducts to optimize recovery.

L-arginine also increases anabolic substrates such as growth hormone and insulin. With long-term supplementation, L-arginine up-regulates mitochondria (the cellular energy power-

houses) in skeletal muscle, resulting in increased metabolism and greater capacity to use energy for contraction. In addition, extended use has been shown to increase the growth of blood vessels in skeletal muscle and the heart, resulting in an even greater ability to deliver nutrients and remove metabolites during and after workouts.

**DO THIS** Take 5 grams of L-arginine one hour before training, on an empty stomach.

## BETA-ALANINE

This preworkout dose is intended to ensure that substrates for carnosine production are maximized for the upcoming training session.

**DO THIS** Take 2 grams of beta-alanine 30-60 minutes before training.

## WHEY PROTEIN ISOLATE

Whey protein isolate (WPI) is the best source of protein to ingest before training. It digests rapidly — meaning less chance of stomach upset during your workout — filling your blood with amino acids, including BCAAs and other essential aminos. Science shows that it's the hyperaminoacidemia that gives WPI its great anabolic properties. WPI also provides the body with additional mass-building support by up-regulating the production of glutathione (a powerful antioxidant) because of its large fraction of the amino acid cysteine.

**DO THIS** Consume a shake with 25-40 grams of high-quality WPI 30 minutes before training.

## BETA-HYDROXY-BETA-METHYLBUTYRATE

This metabolite of leucine has been scientifically proven to prevent muscle breakdown, increase strength and promote fat loss. Its anti-catabolic effect is more pronounced in beginners than intermediate or advanced bodybuilders, but HMB is a potent strength- and

recovery-boosting supplement for all levels of trainers.

**DO THIS** To maximize strength, take 3-6 grams with your preworkout protein shake.

## FORSKOLIN

Time to get your Hulk on. Using testosterone boosters preworkout can help you generate more force during workouts, making it especially important during this window.

**DO THIS** Take 20-50 grams of forskolin 60 minutes preworkout.

## D-ASPARTIC ACID

Working T-boosting through different channels, DAA can help augment your training session, as well.

**DO THIS** Take 1 gram 60 minutes preworkout.

## POSTWORKOUT

In terms of building mass, scientific data suggest that proper postworkout nutrition and supplementation are vital because cells are depleted of nutrients and can quickly slip into a state of catabolism. Called the "anabolic window," this period represents an approximate two-hour time frame when the body is hypersensitive to any nutrient intake. The following stack is designed to capitalize on the anabolic window by augmenting anabolic hormones, replacing amino acids and maximizing recovery.

## CREATINE MONOHYDRATE

This dose is vital to restore creatine levels in muscles. It'll also fire up key anabolic pathways for a more complete and faster recovery.

**DO THIS** Take 5 grams of creatine monohydrate immediately after training.



### L-CARNITINE L-TARTRATE

Research shows that ingesting LCLT immediately after training will augment LH responses and increase androgen (testosterone) receptor expression in skeletal muscle.

**DO THIS** Take another 2-gram dose of LCLT immediately after training.

### L-GLUTAMINE

Taken postworkout, L-glutamine is a proven agent for blunting catabolism. Research shows that ingesting L-glutamine immediately after exercise enhances recovery and muscle growth.

**DO THIS** Take 5 grams of L-glutamine immediately after training.

### BETA-HYDROXY-BETA-METHYLBUTYRATE

Scientific data suggest that post-exercise HMB supplementation augments the recovery process. The outcome is more strength and size in a shorter period. And among novices, HMB will significantly blunt the catabolic response.

**DO THIS** Take 3-6 grams of HMB immediately after training.

### WHEY PROTEIN HYDROLYSATE

Whey protein hydrolysate (WPH) is made from WPI by enzymatic degradation (hydrolysis). Essentially, manufacturers use special enzymes to predigest the proteins in WPI. The end product is digested high in the gastrointestinal tract and enters the blood almost immediately upon ingestion. WPH is the fastest-digesting protein source, and studies illustrate that the faster amino acids enter the blood after exercise, the greater the anabolic response. The rapid digestion of WPH also loads water into muscle cells (cell volumizing), speeds recovery, drives anabolism and supports immune function. The drawback is that WPH is costly to manufacture and thus is relatively expensive.

**DO THIS** Consume a shake with 25-30 grams of high-quality WPH immediately after training.

### DEXTROSE

Although it sounds counterintuitive for physique-minded individuals to sugar up, that's exactly what's needed in the moments following a workout to maximize your gains. This form of glucose is a small monosaccharide and one of the simplest sugars. It's digested high in the gastrointestinal tract (beginning in the mouth) and is very high on the glycemic index. The rapid absorption rate of dextrose makes it an ideal post-training carb supplement that enters the blood immediately to cause a great spike in blood insulin and drive sugars into depleted muscles. Insulin is very anabolic, so combined with high amounts of protein, dextrose serves as a mass-building agent.

**DO THIS** Mix 25-50 grams of dextrose into your WPH shake and drink immediately after training.

### DINNER

Since we've assumed that dinner follows your workout in this supplement schedule, it's imperative that you consume a large, well-balanced, high-protein dinner.

### ESSENTIAL FATTY ACIDS

**DO THIS** Take 2-3 grams of balanced EFAs with dinner.

### BEDTIME

The day is done and it's time for some high-quality rest and recovery. Since you'll be fasting for the next seven to 10 hours, it's crucial that you give your body the appropriate nutrition before hitting the hay. Here's a stack that'll feed your muscles and help prevent catabolism while you sleep.

### MICELLAR CASEIN

This is the purest casein protein available, and its unique properties make

it seem like a custom food supplement designed specifically for sleeping athletes. Its slow digestion results in a sustained release of amino acids into the blood, which produces anti-catabolic effects in the body. In fact, research shows that ingesting micellar casein inhibits muscle breakdown by more than 30 percent. Additional data illustrate that casein ingestion produces a seven-hour sustained plateau in blood amino acid levels and offers the best muscle nitrogen retention and utilization needed for substantial mass gains.

**DO THIS** Immediately before bed, drink a shake with 30-50 grams of high-quality micellar casein.

### ZINC MONOMETHIONINE ASPARTATE AND MAGNESIUM ASPARTATE (ZMA)

ZMA is a proprietary zinc supplement reported to increase growth hormone and testosterone levels when taken before bed. As a bonus, users have reported falling asleep more quickly and deeply. In a recent study, subjects who took ZMA during eight weeks of training had 250 percent greater strength gains than the placebo group. The ZMA group also had a 20 percent greater increase in testosterone levels as well as more than 20 percent greater IGF-1 levels compared to the placebo group.

**DO THIS** ZMA supplements are formulated in the following amounts: 11 milligrams vitamin B6, 450 milligrams magnesium, 30 milligrams zinc. For optimal results, take ZMA on an empty stomach approximately 30 minutes before drinking your micellar casein shake before bed.

### D-ASPARTIC ACID

While you sleep, levels of your natural growth hormone (GH) are at their peak. This bedtime booster helps you keep your T on par with your GH overnight.

**DO THIS** Take 1 gram before bed.



“

SINCE YOU'LL BE FASTING  
FOR THE NEXT SEVEN TO  
10 HOURS, IT'S CRUCIAL  
THAT YOU GIVE YOUR  
BODY THE APPROPRIATE  
NUTRITION BEFORE  
HITTING THE HAY.”



## SUPPLEMENTAL MASS — THE CHECKLIST

Optimizing muscle anabolism means eating a clean, protein-rich diet and combining supplements that meet your metabolic needs depending on the time of day. Here's an overview of how you can jump-start your natural muscle-building engines with supplements. Note: This schedule assumes you train in the late afternoon and before dinner.

	WAKE & SHAKE	BREAKFAST STACK	PRE-LUNCH MUNCH	PRE-WORK-OUT	MID-WORKOUT	POST-WORKOUT	DINNER	BEDTIME
WEIGHT GAINER	50-60 g protein		50-60 g protein					
CREATINE MONOHYDRATE	5 g				5 g	5 g		
BCAAS	5-10 g							
EFAS		2-3 g					2-3 g	
MULTIVITAMIN		As directed						
FORSKOLIN		20-50 mg		20-50 mg				
D-ASPARTIC ACID		1 g		1 g				1 g
L-CARNITINE L-TARTRATE		2 g				2 g		
BETA-ALANINE		2 g		2 g				
L-GLUTAMINE				5 g		5 g		
L-ARGININE				5 g				
WHEY PROTEIN ISOLATE				25-40 g				
BETA-HYDROXY-BETA METHYL-BUTYRATE (HMB)				3-6 g		3-6 g		
WHEY PROTEIN HYDROLYSATE					25 g	25-30 g		
DEXTROSE					25 g	25-30 g		
MICELLAR CASEIN								30-50 g
ZMA								11 mg B6, 450 mg magnesium, 30 mg zinc





## EDITOR'S PICKS

If you want to be more selective with your first stack, choose from among these M&P-approved products and build your supply (and your physique) from there.

WINDOW	PRODUCT	MAIN INGREDIENTS
BREAKFAST	50-60 g protein	Whey, Creatine, Glutamine
PREWORKOUT	Applied Nutriceuticals N.O.Vate	L-Arginine
PRE- + POSTWORKOUT	Gaspari Myofusion Advanced	Whey, Casein
	MuscleMeds Carnivor	BCAAs, Creatine, Glutamine
BEDTIME	MHP 5D Tropin	ZMA
	Finalex Revolution Test	D-Aspartic Acid
	Applied Nutriceuticals Free Test XRT	Forskolin



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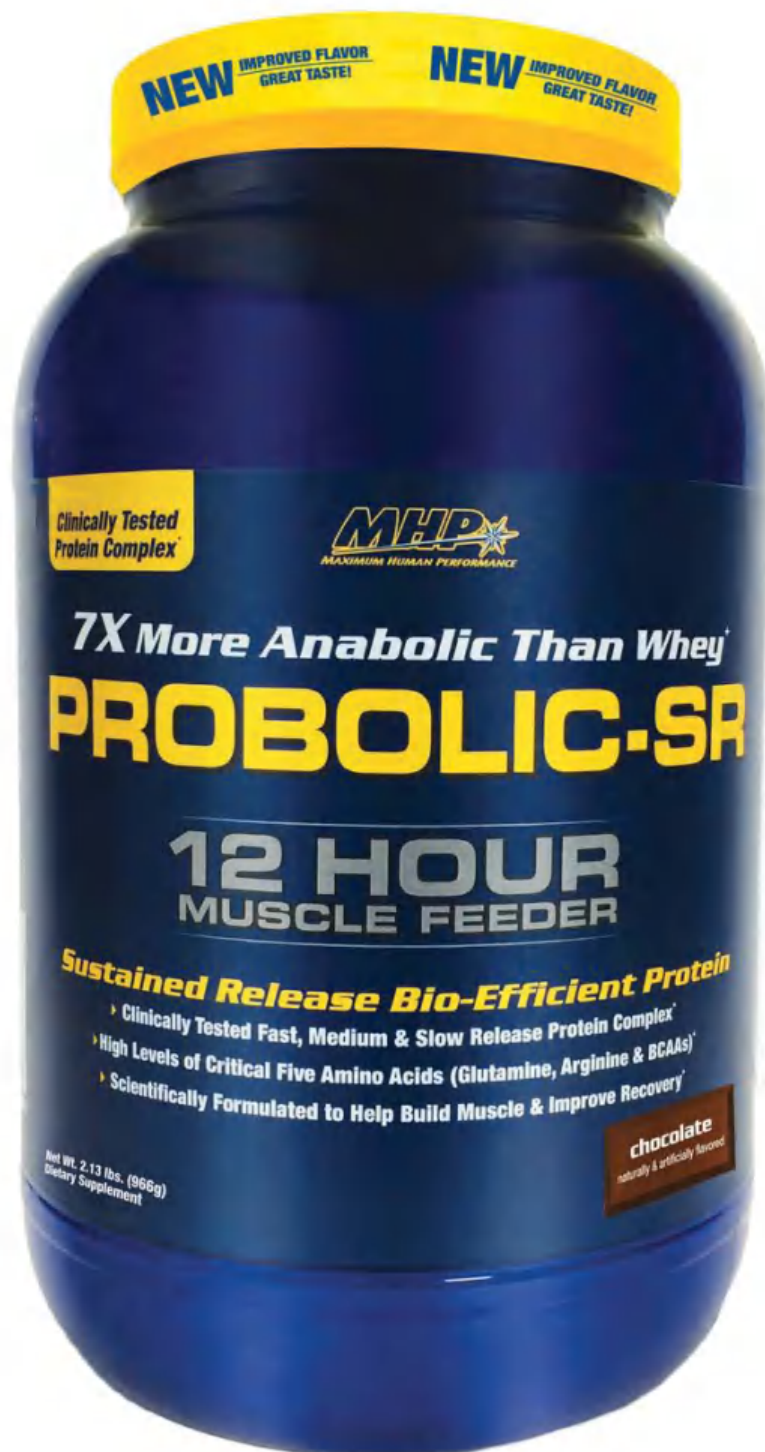


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A recent landmark clinical study published in the *Journal of Applied Physiology* confirms that consuming a blend of fast-, medium- and slow-digesting proteins supplies a prolonged delivery of critical amino acids to the muscles. The combination of these precise muscle-building proteins provides far greater anabolic and anti-catabolic benefits than any other single protein supplement. In fact, the combination protein used in the study was found to be seven times more anabolic than whey protein for building muscle following resistance exercise. This study confirms that consuming a blend of casein, whey and soy proteins — found only in Probolic-SR — provides a prolonged delivery of amino acids to the muscles versus whey protein alone.

It's well known by scientists that muscles don't fully recover or grow to their full potential in the 30 to 60 minutes postworkout, which means fast-digesting whey protein alone isn't enough. This study showed that the casein/whey/soy protein blend provided amino acid delivery for up to five hours. This means a combination protein will provide greater anabolic effects much longer than what's possible when using just whey protein.

But the muscle-building benefits of using Probolic-SR don't stop there. Amino acids are the building blocks for muscle tissue, so you must have adequate amounts of aminos to feed your muscles for them to grow. Scientists have identified five amino acids that are extremely important for stimulating and supporting muscular growth. These are known as the "critical five": glutamine, arginine and the BCAAs (leucine, isoleucine and valine). Probolic-SR provides high levels of the critical five aminos, thereby increasing its anabolic action.

Finally, to enhance its already powerful anabolic and anti-catabolic properties, Probolic-SR contains the patented Sustained Release Micro-Feed Technology that extends the release of amino acids for up to 12 hours for longer anabolic action.

If you're looking for explosive muscular growth and maximum anabolic effects, you can count on Probolic-SR. This revolutionary protein supplement is available in multiple flavors and can be found at The Vitamin Shoppe stores nationwide. It's gym-tested and research-proven. Test it for yourself! ■



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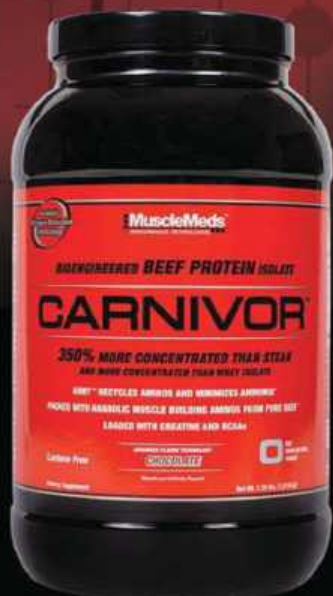
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\*Sharp, et al., 2015 ISSN International Conference [Poster]. Muscle mass data based on male subjects. Lean body mass gains compared to baseline. Based on 2 scoops (46 grams protein) daily. Female subjects also experienced an increase in lean body mass.







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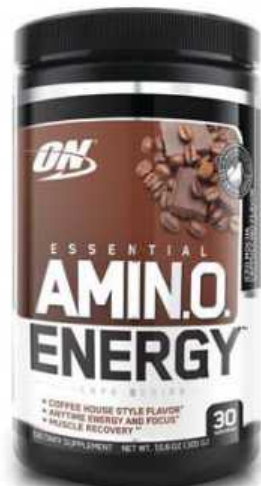
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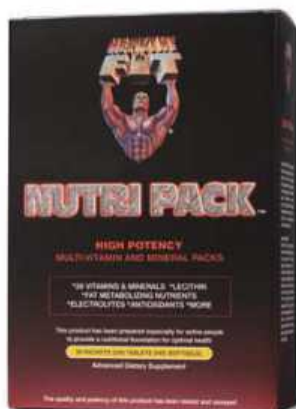
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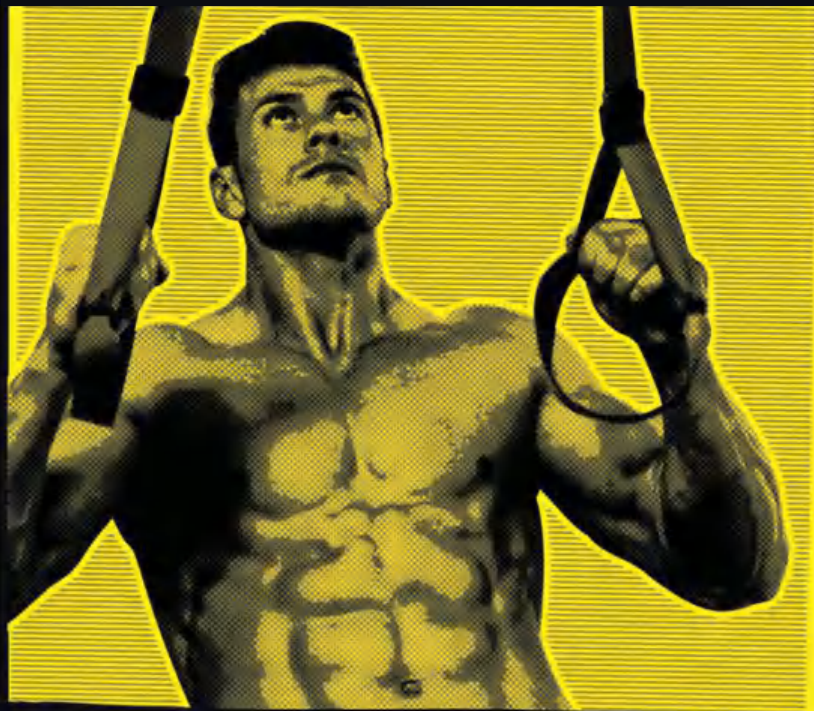


# 5WAYS

## TO GET YOUR CARDIO WHEN IT'S COLD

THERE ARE MANY OPTIONS FOR BLASTING BODY FAT WHEN THE WEATHER OUTSIDE IS FRIGHTFUL. HERE ARE FIVE.

BY ERIC VELAZQUEZ, CSCS



Cardio, like war, is hell. But because it's a prerequisite for a lean, fit physique — at least for most of us mere mortals — you dutifully hit the treadmill a few days per week. Yet for those who keep themselves sane by doing their preferred method of cardio outdoors, there's another consideration: weather. The bite of winter air can make outdoor activities downright unbearable. Chapped lips and achy, slow-to-warm joints are the last thing you want to worry about during a marathon cardio session. Still, there are benefits to eschewing indoor activity: Studies show that cold-weather training forces your body to burn through glycogen and fat faster. For that reason and others, there's never an excuse to skip your workout, says Taylor Simon, CSCS, a Canada-based strength and conditioning specialist.

"Training in a climate as variable as Canada's, we are forced to work out in all weather conditions," he says. "When

it turns cold and snowy, this means we have to make the best of what we have. Working out in the cold won't decrease your results or the effectiveness of the exercise, but you do have to be more conscious of your safety. Dress in layers, and remember that just because you feel warm doesn't mean your extremities are getting the circulation they need. I recommend shortening your workouts and making them a little higher in intensity to minimize your exposure to the cold."

Here's more on how to get your cardio in during the cold winter months.

### 1 DON'T CHANGE A THING

If running is your typical choice of cardio, go ahead and lace up and hit the pavement. "Just because the weather gets a little cooler doesn't mean you have to forgo your favorite outdoor cardio options," Simon says. "A little more preparation is all that's required. Wa-

terproof shoes, good socks, gloves and a face shield are necessary to protect your extremities."

### 2 EXPAND YOUR OPTIONS

If the weather outside is unreasonably cold — think blizzard — then it's probably best to improvise with a solid home workout. "There are so many effective and moderately priced options for home equipment," Simon explains. "I recommend the TRX or a set of kettlebells. This equipment offers full-body functional training, and provides some of the benefits of strength training while also targeting your cardio requirements."

### 3 TURN BACK THE CLOCK

Simon points out that a little creativity can go far in the absence of home equipment. High-rep, low-rest work with some old-school bodyweight moves can be effective for your ticker and your waistline. "Remember grade school? Think jumping jacks, burpees, mountain climbers, push-ups, jump squats and jumping lunges," he says.

### 4 HYBRIDIZE

Resistance training for cardio (see No. 2) paired with high-intensity bodyweight work (see No. 3) can provide a fast and effective home workout. "The best part is that you can create an endless combination of activities so boredom is never a problem," Simon explains. "Move from exercise to exercise in 30-second bursts for a five-minute circuit to get a lung-burning cardio blast, then repeat."

### 5 JOIN A CLASS

Getting out and about when it's so cold outside that your face hurts isn't very appealing, but if you can muster the walk to the car, some group activity is an excellent winter option. "During those really cold winter months, a spin class or masters swimming program at a gym is a great way to keep your workout intensity high and boredom at bay," Simon says. ■

*Taylor Simon, CSCS, is co-director of Taylored Training Inc. in Kingston, Ontario, Canada. For more training advice from Simon, visit [tayloredtraining.ca](http://tayloredtraining.ca).*





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